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ENVIROCARE OF UTAH, LLC
SAFE AND SECURE

RADIOACTIVE WASTE PROFILE RECORD

EC-0230, Revision 5

A. GENERATOR AND WASTE STREAM INFORMATION

GENERAL: Complete this form for one waste stream. Contact Envirocare at (801) 532-1330 if you have any questions while completing this form. Please indicate "N/A" if a category does not apply.

1. GENERATOR INFORMATION

Generator Name: US DOE Mound EPA ID #: OH6890008984

Generator Contact: JoAnna Wilson Title: Waste Coordination

Mailing Address: PO Box 750, 1 Mound Rd

Miamisburg Utah Site Access Permit #: 0302002043

Phone: 937-673-2881 Fax: 937-865-4380 Email: wilsjm@doe-md.gov

Contractor Name: CH2MHill Location of Waste (City, State): Miamisburg

Name & Title of Person Completing Form: JoAnna Wilson, Waste Phone: 937-673-2881 Email: wilsjm@doe-md.gov

2. WASTE STREAM INFORMATION

Waste Stream ID: 9305-03 Waste Stream Name: Elemental Mercury State of Origin: Ohio

Revision: 0 Date: February 01,2006 Volume (ft^3): 0.667 cu ft Delivery Date: April 03, 2006

CHECK APPROPRIATE BOXES BELOW. Please verify the required forms requested below are completed and submitted with the Radioactive Waste Profile Record.

HAZARDOUS WASTE: Is the waste classified as hazardous waste as defined by 40 CFR 261?

N ☐ If NO, complete and attach the **"Low-Level Radioactive Waste Certification Attachment"**.

Y ☒ If YES, complete and attach the **"Hazardous Waste Certification Attachment"** and check applicable box below.
Has the waste been treated to meet applicable treatment standards per 40 CFR 268? Y ☐ N ☒
Is the waste to be treated by Envirocare? Y ☒ N ☐

LOW-LEVEL RADIOACTIVE WASTE: Is the radioactive waste defined as Low-Level Radioactive Waste in accordance with the Low-Level Radioactive Waste Policy Amendments Act of 1985 or in DOE Order 435.1?

Y ☒ If YES, a current copy of a LLRW Compact Export letter authorizing export must be submitted if applicable. This authorization is applicable for non-DOE LLRW (i.e., Mixed Waste, NORM/NARM, 11e.(2) material, and waste from DOE do not require a Compact Export Letter).

N ☐ If NO, check appropriate box: NORM/NARM ☐ 11e.(2) Byproduct Material ☐ Other: _____

SPECIAL NUCLEAR MATERIAL: Does the waste stream contain material with uranium enriched in U-235 or any of the following radionuclides: U-233, Pu-236, Pu-238, Pu-239, Pu-240, Pu-241, Pu-242, Pu-243, or Pu-244?

Y ☐ N ☒ If Yes, complete and attach the "SNM Exemption Certification" form (EC-0230-SNM). Supporting statements, analytical results, and documentation must be included with the submittal.

PCB WASTE: Does the waste contain Polychlorinated Biphenyls (PCB) that are regulated for disposal per 40 CFR 761?

Y ☐ N ☒ If Yes, complete and attach the "PCB Waste Certification" form (EC-98279).

ASBESTOS: Does the waste contain Asbestos Containing Material?

Y ☐ N ☒ If Yes, Asbestos Containing Material must be managed in accordance with applicable federal regulations. Provide a detailed description of the waste containing asbestos in Section B.5 of the waste profile.

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B. WASTE PHYSICAL PROPERTIES & PACKAGE INFORMATION

1. GENERAL CHARACTERISTICS

Does the waste contain free liquids? Y ☒ N ☐ If Yes, what is the percent of free liquid by waste volume? 80 %

If Yes, is the liquid aqueous (water-based)? Y ☐ N ☒

Does the waste contain absorbent? Y ☒ N ☐ Density range of the waste: 13 - 14 g/cc ☒ lb/ft³ ☐

List percentage of waste type by volume: Soil ____% Concrete & Metal ____% DAW ____% Resins ____% Sludge ____%

Other constituents and percentage by volume? 80% elemental Hg, 20% absorbent/Hg containers

2. MATERIAL SIZE

Gradation of Material: Indicate the percentage of waste material that would pass through the following grid sizes. For example, 95% of the material would pass through a 12" square, 90% passes through a 4" square, 80% passes through a 1" square, etc.

12" 100 % 4" 80 % 1" 100 % 1/4" 100 % 1/40" 100 % 1/200" 80 %

Does the waste stream contain oversize debris (i.e., no dimension < 10 inches and any dimension > 12 feet)? Y ☐ N ☒
If Yes, include a detailed description (i.e., weight, size, drawings, etc.) of the oversize debris in the narrative of Section B.5.

3. MOISTURE CONTENT

For soil or soil-like materials, please use Std. Proctor Method ASTM D-698 to determine the optimum moisture content. The waste material must not exceed 3 percentage points above optimum moisture upon arrival at Envirocare's disposal facility unless approved by Envirocare.

Optimum Moisture Content: n/a % at Maximum Dry Density (lb/ft³): n/a

Average Moisture Content: n/a % Moisture Content Range: n/a% - n/a%

4. WASTE SHIPPING & PACKAGING

Transportation Mode: ☒ Highway ☐ Rail

Shipping & Container Packages: (Check all that apply) ☒ Drums* (≤ 85 gallons) ☐ Boxes (≤ 100 ft³) ☐ Soft-Sided Bags (≤ 10 yd³)

☐ Intermodal ☐ Sealand ☐ Gondola** ☐ Box Car

Other:

*Palletized drums are preferred by the disposal site. Please specify in the "Other" field if drums will not be palletized.
**Dimensions of gondola railcars must be between 48 to 65 feet in length and 8.5 to 12.5 feet in height as measured from the top of the rail to the top of the railcar unless approved by Envirocare.

5. NARRATIVE DESCRIPTION AND HISTORY OF WASTE

Please submit a narrative description and history of the waste as an attachment to the Radioactive Waste Profile Record. This attachment should include the following:

- Process that generated the waste
- Waste material physical composition and characteristics
- Radiological and chemical characterization method
- Basis for determining manifested radionuclide concentrations
- Description and amounts of absorbents, if applicable
- Basis of non-hazardous or hazardous waste determinations
- Treatment processes, if applicable
- Product information or Material Safety Data Sheets associated with the waste as applicable
- Information requested in other sections of this form

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Waste Stream ID: 9305-03 Revision: 0 Date of Revision: February 01,2006

C. RADIOLOGICAL INFORMATION

Obtain sufficient samples to adequately determine a range and weighted average of activity in the waste. Attach the gamma spectroscopy or radiochemistry data supporting the radionuclide information listed below.

1. Does the waste material contain accessible surfaces with contact dose rates greater than 500 mR/hr? Y ☐ N ☒

2. Does the waste material contain any of the following isotopes: Aluminum-26, Berkelium-247, Calcium-41, Californium-250, Chlorine-36, Rhenium-187, Terbium-157, or Terbium-158? Y ☐ N ☒

3. Please list the following information for each isotope associated with the waste. Provide an explanation in the narrative description of Section B.5 if the waste contains localized "hot spots" or elevated concentrations that significantly exceed the upper concentration range. If additional space is needed, provide an Attachment C.3 to this profile record formatted as below.

Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)	Isotope	Manifested Upper Concentration (pCi/g)	Weighted Avg. per Container (pCi/g)
Th-230	742.66	40.41	Th-232	1169	168
Pb-210	109.2	5.01	Ra-226	76.93	6.69
Ac-227	58.6	3.51			

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HAZARDOUS WASTE CERTIFICATION ATTACHMENT

This form is required only if the checkbox for Hazardous Waste on page one has been checked YES. Otherwise, complete the Low-Level Radioactive Waste Certification Attachment instead of this attachment. Envirocare may waive the chemical laboratory analyses if the material is not amenable to chemical sampling and analysis (e.g., debris items including metal pieces, concrete, plastic, etc.). Justification for waiving the chemical analyses must be provided in Section B.5.

D. MINIMUM REQUIRED CHEMICAL ANALYSIS

The following parameters must be analyzed by a Utah or NELAC certified laboratory. Typical SW-846 analytical methods have been listed. Other approved methods are acceptable. Attach the most recent or applicable chemical analytical results representing the waste.

1. GENERAL CHEMICAL PARAMETERS

SW-846 Analytical Methods

pH (Liquid only): n/a — **Method 9045** Please provide the range of the pH analyses performed.

PFLT: n/a Pass / Fail — **Method 9095** Not applicable for liquid radioactive waste streams.

Analyze the waste for volatile or semi-volatile constituents (Methods 8260 & 8270), and attach the data.

Any distinguishing color or odor? Y ☐ N ☒ If Yes, color: ____; odor: ____

2. HAZARDOUS WASTE CODES AND TREATMENT STANDARDS (40 CFR 268)

List all hazardous waste codes and treatment standards. Include hazardous waste codes that have been removed through treatment and indicate "Former" in the second column. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.2 to this profile record formatted as below. Include a description of hazardous waste determinations and any variances, exclusions, etc. in the narrative requested in Section B.5.

EPA HW Codes	Description, Constituent of Concern, or Subcategory	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
D009	Elemental Mercury	Amalgamation	

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3. **UNDERLYING HAZARDOUS CONSTITUENTS (40 CFR 268.48)**

List all underlying hazardous constituents (UHCs) and treatment standards. Include UHCs that have been removed through treatment. Worst-case concentrations only need to be provided for concentration based treatment standards. If additional space is needed, provide an Attachment D.3 to this profile record formatted as below.

Underlying Hazardous Constituents	Treatment Standard (mg/kg unless noted as mg/L TCLP or Technology Code)	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
none		

D. 4. **OTHER CHEMICAL CONSTITUENTS**

List any other chemical constituents of concern (e.g., PCBs, chelating agents, etc.) and worst-case concentrations. If additional space is needed, provide an Attachment D.4 to this profile record formatted as below.

Other Chemical Constituents	Worst Case Concentration (mg/kg unless noted as mg/L TCLP)	Other Hazardous Constituents	Worst-Case Concentration (mg/kg unless noted as mg/L TCLP)
none			

5. **LABORATORY CERTIFICATION INFORMATION**

☐ **UTAH or NELAC CERTIFIED**
The Utah or NELAC certified laboratory holds a current certification for the applicable chemical test methods insofar as such official certifications are given. Please provide a copy of the laboratory's current certification letter for each parameter analyzed and each method used for chemical analyses required by this form.

☐ **OTHER LABORATORY CERTIFICATION** (Describe below)

no laboratory certification, process knowledge for elemental mercury

6. **CERTIFICATION**

I certify that sample results representative of the waste described in this profile were or shall be obtained using state- and EPA-approved analytical methods. I also certify that where necessary representative samples were or shall be provided to Envirocare and to qualified laboratories for the analytical results reported herein. I further certify that the waste described in this record is not prohibited from land disposal in 40 CFR 268 (unless prior arrangements are made for treatment at Envirocare) and that all applicable treatment standards are clearly indicated on this form. I also certify that the information provided on this form is complete, true, and correct and is accurately supported and documented by any laboratory testing as required by Envirocare. I certify that the results of any said testing have been submitted to Envirocare. I certify that the waste does not contain any prohibited items listed in Envirocare's Radioactive Material License or RCRA Permit.

Generator's Signature: [signature] Title: Waste Coordination Date: January 30, 2006

Hazardous Waste Certification Attachment

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ATTACHMENT B.5
PHYSICAL PROPERTIES

Generator Name: US DOE - Mound / CH2MHill Mound Waste Stream ID: 9305-03
Revision #: 0 Revision Date: January 30, 2006

This waste is the result of unearthing previously disposed of waste materials in an area formally used as a land fill for various waste types at the Mound site. The matrix consists of four 1-liter and one 500ml. plastic bottles that contain elemental mercury. Each bottle varies in quantity and are individually bagged. The total quantity of mercury is approximately 2 liters. They are packaged in a 5 gallon drum filled with vermiculite. Several radioactive nuclides have also been detected.

The technical basis for the radiological characterization used a combination of process knowledge and analytical information obtained on the soil in the vicinity of where the aforementioned bottles were found.